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Pharmacokinetics of Nicotine in Naive and Habituated Cigarette, Cigar and Pipe Smokers.

The objectives of this project are (1) to describe quantitatively changes in nicotine blood concentrations of habituated and naive smokers of cigarettes, cigars and pipes after smoking, (2) to define precisely the range of variations in nicotine plasma concentrations in these different groups of subjects after smoking, and (3) to determine whether chronic nicotine administration causes induction of the hepatic microsomal drug-metabolizing enzymes responsible for the biotransformation of nicotine.

Using the radioimmunoassay, new naive and new habituated cigarette smokers, cigar smokers and pipe smokers will be observed to determine the range of variation in plasma nicotine concentration that occurs during inhalation of set numbers of puffs of cigarette, cigar and pipe smoke, respectively, at each of the time points selected.

The radioimmunoassay to detect nanogram quantities of nicotine in human plasma, which these investigators have developed over the past three years, will permit them to process the large number of samples required for pharmacokinetic studies. This makes possible establishment of correlations between various effects of nicotine and plasma nicotine concentrations, and a correspondingly better understanding of the epidemiological, physiological, psychological and genetic bases of tobacco usage in the general population.

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